Repeating device RP-4000x

Installation manual

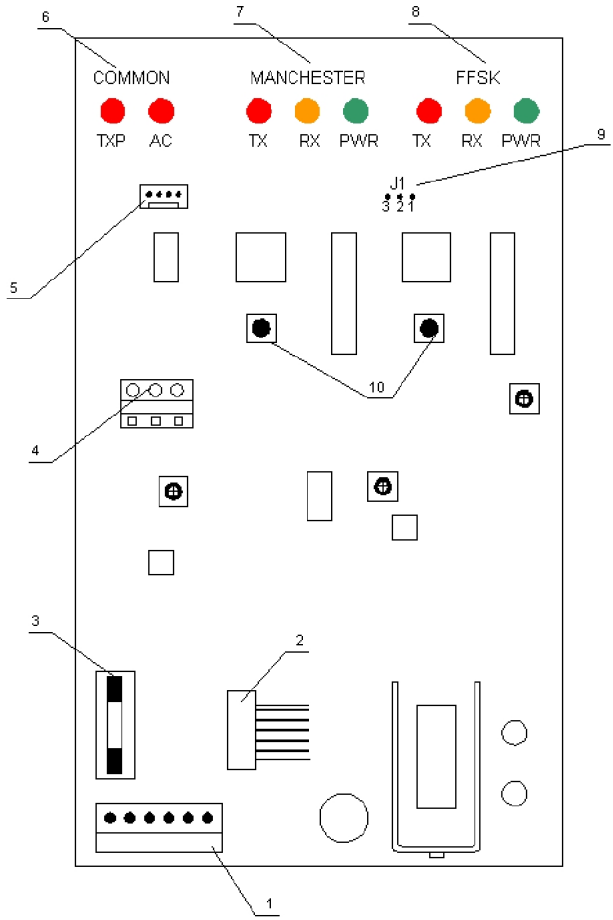
Year 2003

Contents

1 Main features....3
2 Repeating device indication....4
3 CORTEX4000 format repeater parameter's programming....5
3.1 Repeater main programming command list and description....7
4 Programming the relay parameters with the help of UPLOAD function....12
5 WinSC zone description....14
6 Passport....15

1 Main features

RP-4000x repeating devise contains of two independent repeaters, that work at one frequency, but with different data formats (CORTEX1000 and CORTEX4000) and allows making simplex data transmission system from object devices to alarm receiver.



Repeating device's digital board appearance is shown on the picture: 1 – alternating and direct supply slot
2 – transceiver wiring loop
3 – battery interlock
4 – tamper wiring pad
5 – communication joint for connecting computer
COM-port 6 – general repeating device information
7 – indicators for repeater that uses CORTEX1000 format
8 - indicators for repeater that uses CORTEX4000 format
9 – J1 "jumper" is used for choosing relay, whose parameters are needed to be programmed
10 – button for independent sending message about current repeating device condition to every relay

2 Repeating device indication

On the repeating device board are located three indication sets.

Main repeating device indication (6 on Pic.1) – is presented by two indication diodes: TXP and AC. TXP – transmitter power increaser activation. AC – alternating voltage presence indication.

Repeater indication that uses CORTEX1000 format (7 on Pic.1). TX – transmission by cannel takes place. RX – information receiving takes place. PWR – power indicator (glowing – power is normal; blinking – battery runs down; doesn't glow – battery power is lower then critical level, information transmission is impossible).

Repeater indication that uses CORTEX4000 format (7 on Pic.1). TX – transmission by cannel takes place. RX – information receiving takes place. PWR – power indicator (glowing – power is normal; blinking – battery runs down; doesn't glow – battery power is lower then critical level, information transmission is impossible).

3 CORTEX4000 format repeater parameter's programming

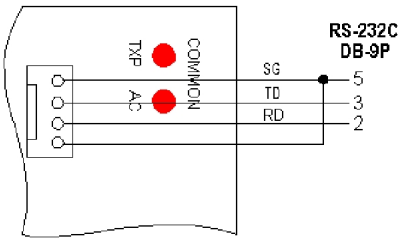
To program the parameters you need any communication program (TELIX, COMIT, TERM95, etc.).

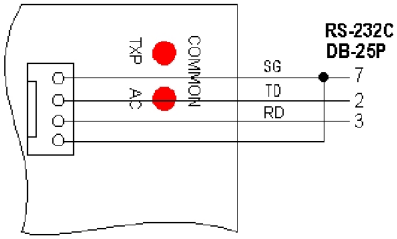
To program connect communication joint, that established on the **RP-4000x** board, with computer COM port by special transition cable. Customize communication program parameters to work with COM port in 9600baudrate 8N1 mode. Now close J1 "jumper" in 1-2 position. If all customizations were made right, then in a short time you will see invitation message (see Pic.1).

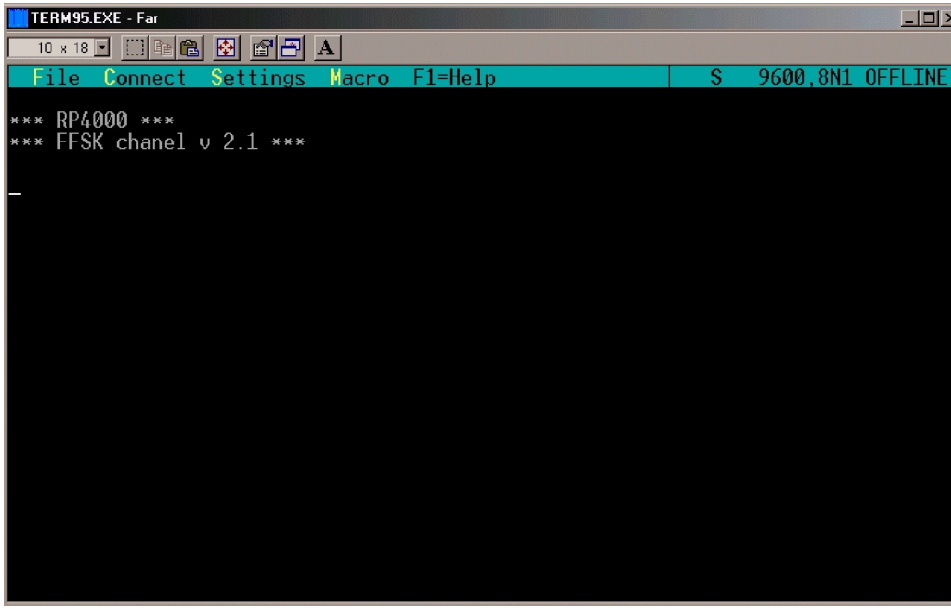
Programming is made with the special commands.

Cable scheme for programming:

where **DB-9P** – 9-contact "male" joint; **DB-25P** – 25-contact "male" joint.







Pic.1.

All commands are entered in small latin letters from the line beginning and end by pressing **Enter** button. If command is entered right, then you will see **OK** message, if is incorrect – **Error**. If there is an argument error – **Invalid argument**.

Argument is a decimal number from 0 to 4095. Some commands don't have arguments.

To return to the repeater normal mode, simply unlock jumper or turn off cable.

3.1 Repeater main programming command list and description

3.1.1 Programming object devises addresses, that allowed independently for every slot.

Common transmitting address space can be separated into four slots. Maximum slot quantity is 4.

ssn = **x** – start address programming;

sen = **x** – end address programming (must be higher or equal this slot's start address);

Where **n** – number from 0 to 3, that determine slot number, and **x** – number from 0 to 4095, that is required slot's address.

Command examples:

ss1=120[Enter] - set first slot's start address for 120.

se1=200[Enter] - set first slot's end address for 200.

So in the first slot will contain object device addresses from 120 to 200 inclusive.

Note: slot's address space shouldn't be common to other slots' address spaces.

3.1.2 Relay work mode programming

fix –work directly to the alarm receiver(***system: repeating device*** ↔ ***alarm receiver***).

nfix – relay works to the other relay ***(system: : repeating device*** ↔ ***: repeating device)*.**

3.1.3 Relay address programming

radr=x

where **x** – number from 0 to 255, determined relay number

3.1.4 Next circuit relay address programming

nadr=x

where **x** – number from 0 to 255, determined next circuit relay number

Note:
Works only in the***: repeating device*** ↔***: repeating device*** system, that must be specified by the proper command (see chapter .) In other case this value is ignored and can be arbitrary.

3.1.5 Mask programming

scrm=x

где **x** – number from 0 to 255, decimal value of the mask, from which all incoming and outgoing relay, alarm receiver and object device messages are scrambled. Relays, alarm receiver and object devices must be in one subnet.

3.1.6 Relay alarm and service message repeat quantity

dmes=x

где **x** – number from 1 to 255, determined repeat (transmission) number on one alarm, test or service relay message.

3.1.7 Relay test message time programming

ttim=x

Where **x** – number from 1 to 255, time in hours between relay test transmissions.

3.1.8 Registered on the relay object devices control time programming

rtim=x

Where **x** – number from 1 to 255. You must multiply given number by 6 min (Minimal countdown) to receive real control time. During that time registered object device must send test or any other message. If that didn't happen relay forms service message to the alarm receiver about loosing communication with the device object.

3.1.9 Removing from the register list time programming

rref=x

Where **x** – number from 1 to 255. You must multiply given number by the registered on the relay object devices control time (see higher). If during that time object device didn't send test or any other message, then it's address is deleted from registered lists, and relay forms proper service message to the alarm receiver.

3.1.10 Reaction on the relay outer sensors time programming

rest=x

Where **x** – number from 1 to 255. You must multiply given number by 50 mS (minimal countdown).

3.1.11 Relay configuration register programming

rcf=x

Register contains three minor bits of the relay configuration:

x = |nu|nu|nu|nu|nu|b3|b2|b1|

where **b1** – fix (1) / nofix (0)
b2 – Alarm message enable(0) / disable (1)
b3 – Auto registry enable (1) / disable (0) **nu**
– isn't used and bit value can be arbitrary

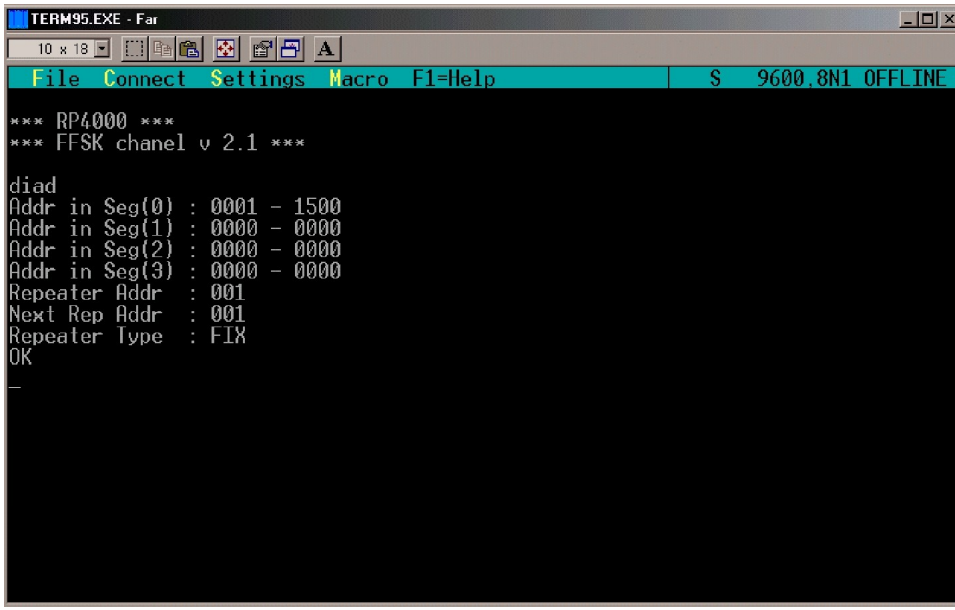
3.1.12 Battery control block programming

bofl=x – battery OFF low (by default: 135; <9B)
bcal=x – battery callibr. (by default: 185; 13,5B)
blol=x – battery LOW low (by default: 143; 9B)
bloh=x – battery LOW high (by default: 153; 10,5B)
bnor=x – battery NORMAL (by default: 160; >11B)

Where **x** – number from 1 to 255. AD converter block count number.

3.1.13 Relay parameter display commands

diad – relay address options display


TERM95.EXE - Far
10 x 18
File Connect Settings Macro F1=Help
S 9600,8N1 OFFLINE
*** RP4000 ***
*** FFSK chanel v 2.1 ***
diad
Addr in Seg(0) : 0001 - 1500
Addr in Seg(1) : 0000 - 0000
Addr in Seg(2) : 0000 - 0000
Addr in Seg(3) : 0000 - 0000
Repeater Addr : 001
Next Rep Addr : 001
Repeater Type : FIX
OK

Pic.2

Addr in Seg(0) : – zero slot addresses
Addr in Seg(1) : – first slot addresses
Addr in Seg(2) : – second slot addresses
Addr in Seg(3) : – third slot addresses

Note: *zero addresses (0000) in slots mean that those slots aren't used in relaying algorithm*

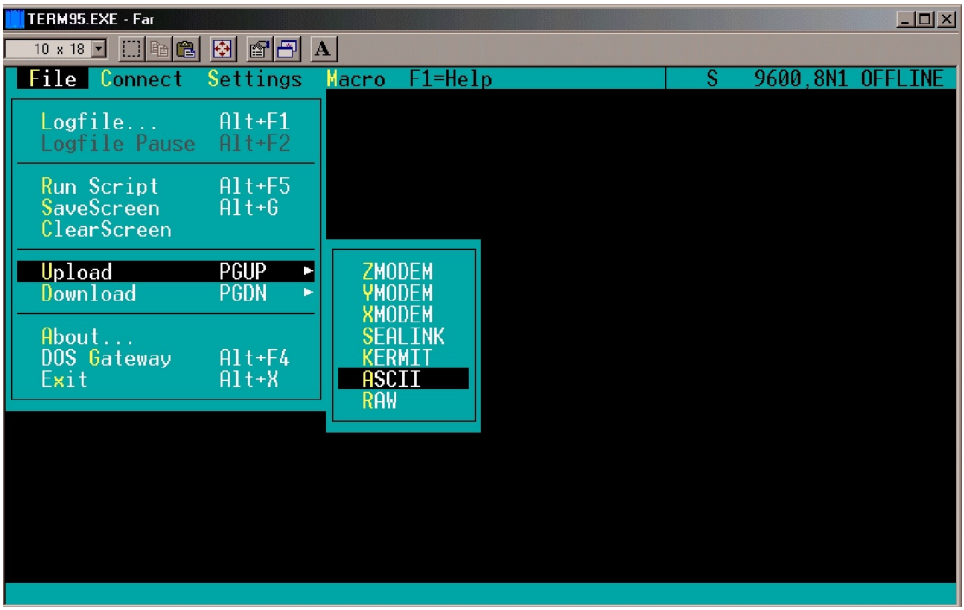
Repeater Addr: – relay address
Next Rep Addr : - relay that receives further message transmission, works only in ***repeating device*** ↔ ***repeating device*** system
Repeater Type: - relay type

rcf? – relay time and system options display

dibt – battery control block options display

4 Programming the relay parameters with the help of UPLOAD function

There is ability to load configuration text file with the help of the terminal program function UPLOAD (see Pic. 3).



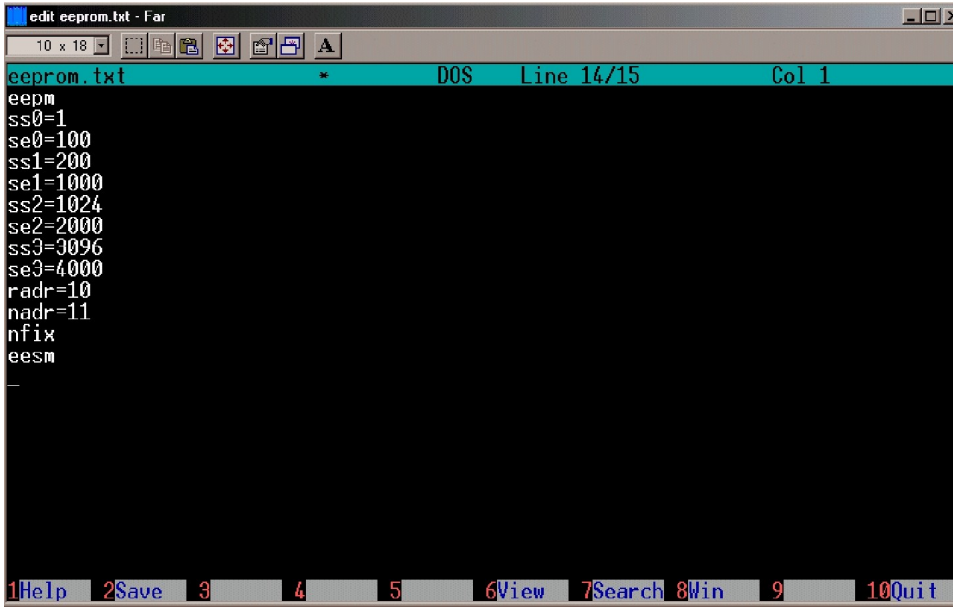
Pic. 3

Text file is the set of commands that are described in chapters 3.1.1 - 3.1.12 and must meet the following requirements:

1. begin with the special command **eepm** (burst programming permission). After this command you must press **[Enter]**.
2. every next command is written from new line and ends with the pressing of the **[Enter]** button.

3. In the last line should be special command **eesm** (burst programming prohibition). After this command you must press **[Enter]**.

Text file example:



5 WinSC zone description

RP-4000x type repeating device transmits to the alarm receiver information about condition of two тамперов, circuit power, spare battery, and test messages. Repeating device zone recommended configuration:

For CORTEX4000 format relay

- Tamper 1 – zone 57;
- Tamper 2 – zone 58;
- AC – zone 8;
- BAT – zone 7;

For CORTEX1000 format relay

- Tamper 1 – zone 2;
- Tamper 2 – zone 3;
- AC – zone 1;
- BAT – zone 5;

6 Passport

№ _____

1. Main features

1.1. **RP-4000x** repeating device (further - item) is two-format item and made for building simplex system of relaying.

1.2. Range of application – in information transmission systems

2. General technical information and adjectives

2.1. Maximum processing address quantity – 4096

2.2. Supports CORTEX1000 and CORTEX4000 formats

2.3. Total buffer capacity – 95 messages

2.4. Spare battery working time – up to 48h

2.5. Item power supply is made from industrial power source with 220V voltage.

2.6. Item is estimated for perpetual 24-Hour running regime

2.7. Item must be used in places, where it is secured from precipitations and mechanical damage.

2.8. Item works steady at sinusoidal vibration gr.3 GOST 16019 influence;

2.9. Packed item stands transportation shaking GOST 16019; 2.10.Supply circuit's isolation electrical resistance:

- At normal conditions, MΩ - not less than 20;
- At high temperature (55°), MΩ - not less than 5;
- At high moisture 93 % and temperature 25°C, MΩ - not less than 2;
- As radio noise source item applies to the group 1 GOST 16842. 2.11.operating temperature range – from +5 to +40 °C

2.12.Item's medium work term, not less than 8 years.

2.13.Item's overall dimensions, at most, mm – 270x310x75.

2.14. Item's weight at most – 4 kg (without battery).

3. Delivery table 3.1.

Table 3.1

Marking	Name and symbolic notation	Quantity
	RP-4000x repeating device	1
	Supply cable	1
	Fuse link 3A	1
	Operating manual and passport	1
	Battery	Ordered
	Programming cable	Ordered

4. Acceptance certificate

4.1. Item with the _____ serial number is made and applied in accordance with national standard binding demands, valid technical documentation and declared serviceable

_____ _____

sign sign expansion

Issue Date _____

5. Manufacturer’s warranty

5.1. Manufacturer warrants item’s conformity to the technical conditions’ demands if user will observe service, storage, transportation and montage conditions.

5.2. Item’s warranty assurance is 2 years after shipping from manufacturer.

5.3. Manufacturer for free of charge repairs and replaces items that have mismatch in technical data mentioned in the operating manual. Item should be returned during the warranty period, and must have manufacturer stamp and no mechanical failures.